

SCHOOL OF
CIVIL ENGINEERING

INDIANA
DEPARTMENT OF TRANSPORTATION

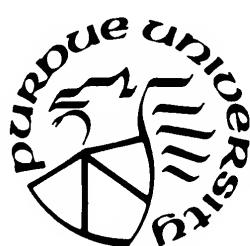
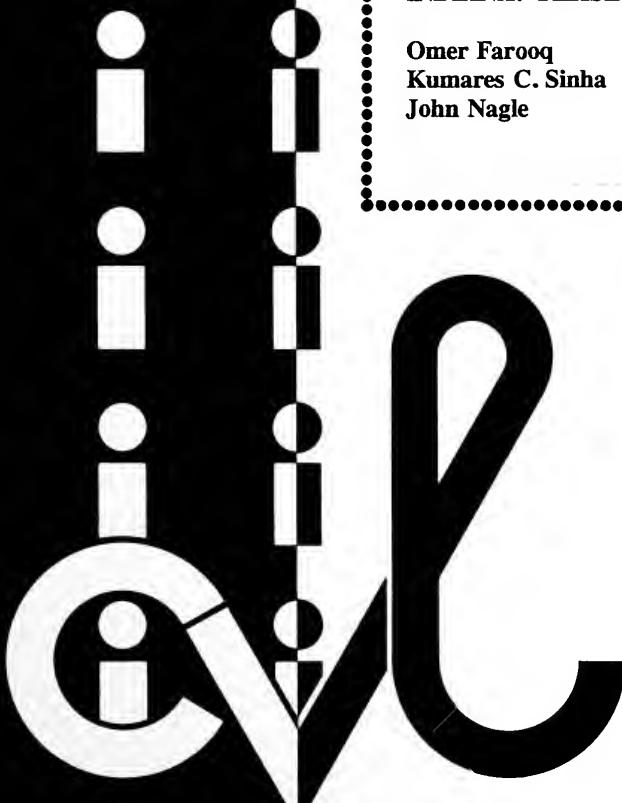
JOINT HIGHWAY RESEARCH PROJECT

FHWA/IN/JHRP-94/14 - 1
Final Report

THE DEVELOPMENT OF A HIGHWAY
SAFETY MANAGEMENT SYSTEM FOR
INDIANA: PHASE I

Omer Farooq
Kumares C. Sinha
John Nagle

Dwayne James
Yi Jiang



PURDUE UNIVERSITY

1

JOINT HIGHWAY RESEARCH PROJECT

FHWA/IN/JHRP-94/14 - 1
Final Report

**THE DEVELOPMENT OF A HIGHWAY
SAFETY MANAGEMENT SYSTEM FOR
INDIANA: PHASE I**

Omer Farooq	Dwayne James
Kumares C. Sinha	Yi Jiang
John Nagle	

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. FHWA/IN/JHRP-94-14	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle THE DEVELOPMENT OF A HIGHWAY SAFETY MANAGEMENT SYSTEM FOR INDIANA: PHASE 1		5. Report Date December 22, 1994	
		6. Performing Organization Code	
7. Author(s) Omer Farooq, Dwayne James, Kumares C. Sinha, Yi Jiang, and John Nagle		8. Performing Organization Report No. JHRP-94-14	
9. Performing Organization Name and Address School of Civil Engineering Purdue University West Lafayette, IN 47907		10. Work Unit No.	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address* Federal Highway Administration U. S. Department of Transportation 400 Seventh Street, S. W. Washington, D. C. 20590		13. Type of Report and Period Covered	
		14. Sponsoring Agency Code	
15. Supplementary Notes Prepared in cooperation with the Indiana Department of Highways and Federal Highway Administration			
16. Abstract This report presents the work plan for the development of a highway safety management system for Indiana. It identifies major activities and responsibilities for the development and implementation of a formal, state-wide, interactive safety decision-making process. The safety management system of Indiana is perceived as a continuous process of considering all opportunities to improve highway safety in all phases of highway planning, design, construction, maintenance and operation. The primary emphasis is on coordination of activities at various levels and on the development of a common information data base that can be used for selecting and implementing effective highway safety strategies and projects.			
17. Key Words safety management		18. Distribution Statement No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 39	22. Price

FINAL REPORT

**THE DEVELOPMENT OF A HIGHWAY SAFETY MANAGEMENT SYSTEM
INDIANA: PHASE I**

Omer Farooq
Kumares C. Sinha
Dwayne James
Purdue University

Yi Jiang
INDOT Research Division

John Nagle
INDOT Roadway Management Division

Joint Highway Research Project

Project No: C-36-59AA
File No: 8-5-27

Conducted in cooperation with the
Indiana Department of Transportation
and
Federal Highway Administration

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views of policies of the Federal Highway Administration and the Indiana Department of Transportation. This report does not constitute a standard, specification or regulation.

Purdue University
West Lafayette, IN 47907
December 22, 1994

Digitized by the Internet Archive
in 2011 with funding from

LYRASIS members and Sloan Foundation; Indiana Department of Transportation

TABLE OF CONTENTS

1.	Introduction	1
2.	Objectives of the Indiana Safety Management System	1
2.1	Scope of the Indiana SMS	2
2.2	Focal Point of SMS	5
2.3	Responsible Government Agencies & Their Role in Indiana SMS	5
2.4	Federal Requirements for SMS	7
	2.4.1 SMS Major Program Areas	7
	2.4.2 Eight Key Elements of SMS	9
3.	Indiana's SMS Work Plan Schedule	12

1. Introduction

Section 1034 of the 1991 Intermodal Surface Transportation Act (ISTEA) requires that each State develop, establish and implement a Safety Management System (SMS) integrated with other highway management systems and with State operations by October 1, 1996.

The ISTEA requires that Indiana provide to the FHWA by October 1, 1994 a Work Plan describing the State's proposed procedure and schedule for developing and implementing its Safety Management System. This Work Plan has two functions, as required by ISTEA Sec 1034 and 23 CFR Parts 500 and 626:

1. it identifies major activities and responsibilities for the development and implementation of a formal, statewide, interactive safety decision-making process, and
2. it contains a schedule that demonstrates full operation and use of the statewide Safety Management System by October 1, 1996.

2. Objectives of the Indiana Safety Management System

The safety management system of Indiana is perceived as a continuous process of considering all opportunities to improve highway safety in all phases of highway planning, design, construction, maintenance and operation. The primary emphasis is on coordination of activities at various levels and on the development of a common information data base that can be used for selecting and implementing effective highway safety strategies and projects. The basic objectives of a SMS in Indiana are:

1. Prevent and reduce the number and severity of roadway crashes.
2. Ensure that traffic safety is considered in all the phases of highway related programs.
3. Establish formalized, interactive communication, coordination and cooperation within and between state and local agencies and relevant citizen groups.
4. Maintain and upgrade safety hardware, highway elements and operational features.
5. Establish and maintain a highway safety data base for the use of all relevant state and local agencies and interested advocacy groups.

2.1 Scope of the Indiana SMS

The components of Indiana SMS are being designed so that they are compatible with the goals, policies and resources of state and local agencies responsible not only for the public roads but also for driver and vehicle licensing, enforcement of laws and regulations, and highway and traffic safety services. As such, the SMS in Indiana is being developed on the basis of the concept that highway safety is the interaction of three major dimensions: roadway, vehicle and roaduser. In order for the SMS to remain compatible with all relevant agencies and their programs, it will follow these basic rules:

1. The SMS will utilize existing data sources and data bases as much as possible in developing a common safety information system.
2. The SMS will optimize the use of existing available resources.
3. The SMS will maintain compatibility with and coordinate the activities of the other transportation management systems identified in ISTEA: Pavement (PMS), Bridge (BMS), Congestion (CMS), Public Transportation (PTMS), and Intermodal (IMS).
4. The SMS will provide an effective forum for the coordination of efforts among various agencies and programs.

In order to achieve a comprehensive SMS and to establish formalized, interactive communication, coordination and cooperation with state and local agencies and with relevant citizen groups, the steering committee has made the identification of traffic safety activities and/or programs the top priority. A preliminary survey has been undertaken to identify all such programs and or agencies in Indiana. Table 1 depicts the three major dimensions' interaction with current traffic safety programs (preliminary results). Table 2 demonstrates how the various agencies which provide these programs interact and intertwine with one another in the delivery of programs and services.

It is clear from this preliminary survey that many different programs and agencies are involved in providing services in areas which overlap or which follow-up on services provided by another agency. For example, the thrust of a roaduser oriented program may involve pre-crash efforts, such as drunk driving enforcement programs sponsored by the Governor's Council on Impaired and Dangerous Driving (COUNCIL). While the long term emphasis of the SMS should include programs that will reduce crashes, efforts are also necessary, such as the provision of emergency services, to enhance roaduser safety when a crash happens as well

	Pre - Crash	Crash	Post - Crash
Roaduser	Driver Skills	Safety Belt Use	Roaduser's Age
	Alcohol/ Substance Use Education		Roaduser's Health
	A.B.A.T.E.		First Aid Training
	Motorcycle Helmet Program		Medical Records
	Drunk Driving Awareness Program		Driver History
	Highway Rail Grade Crossing Safety Program		
Vehicle	Safety Equipment	Vehicle size	
	Vehicle Design	Vehicle Weight	
	Vehicle Inspection & Maintenance	Automatic Seatbelts	
Roadway	Road Design	Roadside Hazards	
	Weather Conditions	Fixed Objects	EMS Response
	Roadway Operation & Maintenance		Availability of Medical Services Hospitals
	Work Zone Traffic Management		
	Lighting		
	Delineation		
	HAZMAT Routing		
	Rail-Roadway Grade Crossing		

Table 1. Matrix showing the Interaction Between SMS Coverage and Program Emphasis

	Pre - Crash	Crash	Post - Crash
Roaduser	ISP	ISP	ISP
	Dept. of Health	Dept. of Health	Dept. of Health
	Local Law Enforcement	NHTSA	The Judiciary
	BMV Dept. of Driver Services	Local Law Enforcement	BMV Dept. Driver Services
	Governor's Council on Impaired and Dangerous Driving (COUNCIL)	COUNCIL	
	INDOT		COUNCIL
	Department of Education	SEMA	SEMA
	MADD, SADD		Indiana Hospital Association
	BMV -Vehicle Services		
Vehicle	Operation Lifesaver		
	ISP	BMV-Vehicle Services	Manufacturers
	BMV -Vehicle Services	City agencies	
	Dept. of Education		
Roadway	INDOT	INDOT	Dept. of Health
	Local Road Departments	Local Road Depts.	INDOT
	NIRPC, MPO's		Local Road Dept.

Table 2. Matrix representation of the SMS elements and the Responsible Agencies

as to deliver timely post crash service to minimize fatalities and injuries. And, finally, programs that focus on traffic records, such as the Indiana State Police (ISP) and driver histories (the Bureau of Motor Vehicles (BMV)) are needed to track potential problem drivers or traffic situations so that effective countermeasures can be taken to help prevent crashes.

2.2 Focal Point of SMS

The focal point is charged with coordinating the development, establishment and implementation of the SMS. The Congestion and Safety Management Engineer in the Division of Roadway Management, a division in the Office of Planning and Intermodal Transportation of the Indiana Department of Transportation (INDOT), has been named the focal point.

The INDOT is ultimately responsible for implementation of the Safety Management System. This means that the INDOT shall be responsible for overseeing and coordinating agreements with and among local agencies, regional agencies and other entities to develop, establish and implement appropriate parts of any or all of the SMS.

2.3 Responsible Government Agencies & Their Role In Indiana SMS

The thrust of the Indiana SMS is on coordination and communication among state and local transportation agencies, regional planning organizations, state and local law enforcement agencies, emergency response agencies, appropriate federal agencies, and various other public and private organizations involved in highway and traffic safety.

The following is a preliminary list of agencies that have been identified as relevant agencies to belong to the Indiana Safety Coalition for the development and implementation of the SMS. We must emphasize that this is only a preliminary list. As other organizations or programs are identified they will be asked to join the Safety Coalition.

1. Indiana Department of Transportation (INDOT)
2. Governor's Council on Impaired and Dangerous Driving (COUNCIL)
3. Indiana State Police (ISP)
4. Indiana Sheriff's Association
5. Indiana Association of Chiefs of Police
6. State Emergency Management Agency (SEMA)
7. Indiana Bureau of Motor Vehicles (BMV)
8. Indiana State Department of Health
9. Highway Extension Research Project for Indiana Counties & Cities (HERPICC)
10. Highway User's Federation
11. Indiana Prosecuting Attorneys Council
12. Indiana Criminal Justice Institute

13. Mothers Against Drunk Driving (MADD)
14. Office of Motor Carrier Safety
15. Federal Highway Administration (FHWA)
16. American Automobile Association (AAA)
17. Operation Lifesaver
18. Metropolitan Planning Organizations (MPO's)
19. Indiana Department of Education
20. Automotive Transportation Center, Purdue University (ATC)
21. Transportation Research Center, Indiana University (TRC)
22. Indiana Association of County Engineers
23. Students Against Drunk Driving (SADD) and other Student anti-alcohol/drug Chapters
24. Indiana Supreme Court, State Court Administration
25. Indiana Hospital Association
26. Indiana Rail Transportation Group
27. Indiana Law Enforcement Academy (ILEA)
28. Commission for a Drug Free Indiana Regional Coordinators
29. Indiana Trauma Action Group
30. Indiana Chapter of American Pediatrics Academy
31. Rural Indiana for Safer Kids
32. Rural Health and Safety Council
33. Indiana 4H Extension Offices
34. Indiana Association of County Commissioners
35. Indiana Association of Counties
36. Indiana Association of Cities and Towns
37. Indiana Trucking Association
38. Indiana Bicycle Association
39. Rural Transportation Organizations
40. Hoosier Safety Council
41. National Highway Traffic Safety Administration (NHTSA)
42. Riley Hospital for Children
43. Institute of Transportation Engineers (ITE)
44. American Society of Civil Engineers (ASCE)

As a part of the development of the work plan for the SMS a survey was conducted to identify the existing programs, procedures and activities that are already underway in different local and state organizations and agencies. Appendix A categorizes the responses of the various programs/ projects into the five Major Areas required by the federal guidelines. Appendix C contains a list of contact persons. This list will be updated on a regular basis.

2.4 Federal Requirements For SMS

The federal government, through the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the subsequent rule making process by the U.S. Department of Transportation has established that each State shall develop and implement several management systems, one of which is the Safety Management System. Each State SMS is required to address five areas of safety, and within each of those areas, is to address eight key processes. These areas and processes are detailed below.

2.4.1 SMS Major Program Areas:

The interim final rule, as published in the Federal Register on December 1, 1993, itemizes five program areas that must be addressed by Indiana's Safety Management System. These are:

1. Coordination and integration of broad based safety programs (such as motor carrier, corridor, and community based traffic safety activities) into a comprehensive management approach for highway safety:

A coordinated comprehensive approach requires involvement of all the highway safety players under the leadership of INDOT and the utilization of the highway safety management process. The process that will be developed will involve the following components:

Planning - (Program Assessment, Problem Identification, Establishment of Goals and Objectives)

Programming - (Program Development, Allocation of Resources)

Monitoring and Review - (Project and Program Monitoring)

Evaluation - (Review of Evaluation Planning, Collection of Data, Feedback to other phases of Management Process)

2. Identification and investigation of hazardous or potentially hazardous highway safety problems, roadway locations and features (including railroad-highway grade crossings) and establishing countermeasures and setting priorities to correct the identified hazards or potential hazards:

An important step for the development of a SMS is to identify and locate the problem areas. Useful information for developing the roadway component of this area is contained in 23 CFR 924. It sets forth a means of developing a comprehensive highway safety improvement program to identify and correct hazardous or potentially hazardous locations and elements on

existing highways. This area sets forth three components that are to be incorporated to establish safe travel on the roads. These are:

Planning - This first step will identify, investigate, analyze and set priorities for projects/programs. It also calls for Intra- and Inter- agency coordination to include consideration of all three components of SMS i.e. roadway, vehicle and roaduser countermeasures. The following steps are recommended in the planning stage.

- 1.) The identification of traffic problems and needs by local authorities as a continuing process.
- 2.) The selection of traffic crash countermeasures for prioritized needs.
- 3.) The application of a systems management approach in program planning.
- 4.) Direct participation of traffic authorities in all program phases.

Implementation - After carefully planning the activities and setting priorities the next step will be to schedule, and implement projects/programs according to their priorities.

Evaluation - The final step in any management system is to carefully evaluate the effectiveness of the implemented solution. To achieve this, procedures will be developed to incorporate evaluation measures into the design and implementation of all safety programs. A list of appropriate measures will be developed for each area of program emphasis.

3. Ensure early consideration of safety in all highway transportation programs and projects

The importance of safety cannot be over emphasized and hence the need for early consideration of safety related efforts, and priorities throughout the development and implementation of all programs and projects. This area calls for the identification and assignment of safety responsibilities to specific agencies and departments, particularly when projects are developed by various agencies or departments through the central offices, field offices, and/ or consultants. An offshoot of this area is the effective coordination between various agencies and departments so that all activities are performed with minimal duplication of efforts.

4. Identify the safety needs of special user groups , in the planning, design, construction and operation of the highway system.

A Safety Management System calls for the establishment of a process that addresses safety needs associated with older drivers, bicyclists, motorcyclists, commercial motor vehicle operators and other special user groups. Every effort should be made to identify and address the crash problems that are unique to these groups.

5. Routinely maintaining and upgrading safety hardware (including highway-rail crossing warning devices), highway elements and operational features.

One of the essential steps in highway safety is the proper usage and installation of safety hardware. Maintenance and operational activities provide an opportunity to enhance safety. This can be accomplished by maintaining and upgrading hardware, highway elements, and operational features including traffic control devices. Activities should be incorporated in the management system that regulate the inventory of safety hardware in use and which facilitate the interaction of databases that keep track of disabled safety hardware and the duration of disability.

2.4.2 Eight Key Elements Of SMS

Within each of the above program areas, Indiana's Safety Management System must also address the following eight process and programmatic criteria.

1. Establish Short And Long Term Safety Goals:

The first step in the development of a SMS is to develop an action plan that identifies long-and short term roadway safety goals. Emphasis will be placed on specific elements which address safety problems identified at local, statewide and national levels. Goals will be developed for such problem areas as commercial motor vehicles, older drivers, pedestrians, bicycles, disabled, motorcycles, and hazardous material carriers as well as substandard highway locations, designs, and features. In addition, goals must be developed to determine allocation of resources. The plan will also specify measurable activities to be evaluated and compared to established goals.

2. Accountability:

For the effective operation of a Safety Management System safety responsibilities will be defined in sufficient detail to identify a responsible unit. Written and widely distributed responsibilities will facilitate appropriate coordination.

3. Coordination And Communication:

Inter and Intra-agency coordination and communication links will be developed or strengthened to the degree necessary to implement and manage a comprehensive safety plan. The agencies identified should then form a strong communication link between themselves to assure coordinated information sharing with each other so as to effectively deal with the safety problems and to formulate procedures and policies for their solution.

4. Collection, maintenance and dissemination of data necessary for identifying problems and determining improvement needs:

Accurate data files and *uniform descriptions* of accidents, roadway, roadside, traffic control devices, traffic volumes, vehicles and drivers should be developed, maintained, linked and shared for comprehensive safety analysis. These records, at a minimum, shall consist of information pertaining to: crashes, traffic (including number of trains at highway - rail crossing), pedestrians, drivers, enforcement activities, vehicles, bicyclists, highway and medical services. Efforts must be made to ensure that data bases are compatible and that barriers to sharing of information are minimized.

5. Safety Analysis:

A comprehensive accident and operational safety investigation procedure will be developed to identify roadway safety needs, select appropriate accident countermeasures and establish priorities. This will involve various performance measures, each relevant to the particular agency, accident reduction factors and various other cost benefit analysis to gauge the depth of the safety problems and to select appropriate countermeasures.

6. Monitoring And Evaluation:

A uniform monitoring process that is consistent, compatible, and comparable to itself and to other evaluation processes within the state will be developed and implemented. This process will provide a means to determine the effectiveness of improvements and provide methods to

incorporate effective programs or projects into future efforts.

7. Development of Public Information and Education Activities:

One of the most effective ways to implement safety on roads is to make the public aware of the safety hazards. In this regard, the Safety Management System requires that the state will develop and implement public information and education activities to educate and inform the public on safety needs, programs, and countermeasures that affect safety on the nations highways. Safety advisory groups will be formed to work in consultation with various agencies to actively inform public through various programs that improve safety.

8. Identification of skills, resources, and current and future training needs, development of a training program, and development of methods for monitoring and exchanging technology and information:

Information about new technology and research will be reviewed and disseminated so that effective results can be incorporated into the SMS. A method to propose research and share results will be developed to be sensitive to the multi modal needs of all users, particularly unique needs such as commercial and older drivers, pedestrians, bicyclists, motorcyclists and the disabled. A training program will be developed and implemented to ensure that the responsible unit has the knowledge, skills and abilities to perform specific duties. The training plan will include a review process and be updated as new technology and information becomes available.

3. Indiana's SMS Work Plan Schedule

The work plan is defined as a written description of major activities necessary to develop, establish, and implement a management or monitoring system, including identification of responsibilities and target dates for completion of the major activities. This section describes the major tasks necessary to implement the SMS, including any responsibilities, resources, and target dates. As such, the work plan is a flexible document. As tasks are undertaken and/or completed, new areas which must be dealt with may be identified and, as they are, the appropriate measures will be taken to address them.

Overall Goal: Full Implementation: October 1, 1996

Through the completion of the following tasks, it is expected that the Indiana SMS will be fully operational by October 1, 1996. It will provide highway strategies, actions, projects, or programs for consideration in development of the Highway Safety Plan, the Motor Carrier Safety Assistance Program, the State Enforcement Plan, metropolitan and statewide transportation plans and improvement programs, and for coordination and implementation of the operational activities of the State and local agencies.

Task 1. Establish Indiana SMS Steering Committee

The first task was the designation of a Safety Management System Steering Committee. An initial meeting of potential coalition members was held on December 10, 1993. From that group, a Steering Committee was established. This committee is headed by staff from INDOT, which serves as the focal point of the SMS. The SMS Steering Committee consists of representatives from various organizations including FWHA, NHTSA, INDOT, Governor's Council on Impaired and Dangerous Driving, SEMA, Indiana State Police, Indiana Dept. of Education, and the BMV. Appendix B contains a list of the Steering Committee members.

Mission Statement:

The SMS Steering Committee, under the direction of the Indiana Department of Transportation, shall oversee the development and publication of the Indiana Safety Management System Work Plan which shall set the strategic framework for developing and implementing a Safety Management System in Indiana. They shall also, through execution of the Work Plan, oversee the development and publication of the Indiana SMS Implementation Plan, which shall provide the FHWA with a clear indication of the specific methodology that Indiana will follow to implement the Indiana SMS as prescribed within ISTEA.

Scope of Work:

The Indiana SMS Steering Committee is charged with the accomplishment of several specific tasks as detailed below. During the course of completing these tasks, the Steering Committee may establish additional items that will be required for the successful development and implementation of the Indiana Safety Management System, and may choose to address these issues in the manner determined as the most efficient and effective.

1. Establish and coordinate the efforts of an Indiana SMS Planning Committee to develop and submit the Indiana Safety Management System Work Plan. (March, 1994)
2. Establish and coordinate the efforts of an Indiana Safety Coalition to assist the Steering Committee in the development and execution of the Indiana Safety Management System Implementation Plan. (Established December 10, 1993)
3. Assure that the community of safety professionals are informed and involved in the development and implementation of the above plans.
4. Provide technical guidance and assistance to management within the effected agencies relative to decision-making in support of the SMS Implementation Plan.
5. Assign subcommittees, as needed, to oversee the completion of each of the following tasks. Monitor the work of the Coalition and related subcommittees to ensure that appropriate issues are addressed and that completion dates are met for both the Work Plan and the Implementation Plan.
6. Define resources that will be required to develop and implement the Indiana Safety Management System Implementation Plan.

Task 2. Identification of Indiana SMS Focal Point:

John Nagle, Congestion and Safety Management Engineer of the INDOT has been named as the focal point for the SMS development and implementation. Completed: June, 1994

Task 3. Identification of Existing Agencies, Programs, Procedures and Activities:

A number of meetings of the SMS Steering Committee have already been held to discuss plans and procedures to identify the major activities being undertaken by the different agencies involved with traffic safety. A survey of all identified agencies has also been conducted to assess current activities and to establish a Safety Coalition. As a continuation of this process, an **Annual State Tracking Inventory** of all Federally or State funded safety programs affecting the roadway, traveler and vehicle shall be maintained by the SMS Steering Committee, including information on costs and effectiveness where available. This inventory shall be maintained by the Governor's Council on Impaired and Dangerous Driving and will help to ensure that all traffic safety efforts in the State are integrated and coordinated. Planned completion of the State Tracking Inventory: Ongoing activity.

Task 4. Establish an Indiana SMS Safety Coalition:

The SMS Safety Coalition has met and will continue to meet on a quarterly basis. New agencies added will be added, once identified, to ensure that all agencies, programs and projects related to the five major areas of the SMS are identified and included in the Safety Coalition. The Safety Coalition will provide members to serve on subcommittees as needed and will provide input into the development and implementation of the Work Plan and the Implementation Plan. In order to better inform and educate the Safety Coalition members, a SMS workshop is planned for February, 1995. Established: December, 1993. Scheduled to meet again in September, 1994 and then on a quarterly basis or as needed.

Task 5. Conduct a Traffic Records Assessment:

In order to identify problem areas in the current traffic records systems (hardware, software, agencies, staff, data elements and barriers to data sharing) in Indiana, it will be necessary to conduct a traffic records systems assessment. The Governor's Council on Impaired and Dangerous Driving plans to conduct such an assessment during calendar year 1995. The assessment will result in a traffic records improvement plan and the establishment of an oversight committee to implement the plan. Planned completion: September, 1995.

Task 6. Data Base Development and Coordination With Other Management Systems:

A framework for the establishment of a SMS data base will be developed on the basis of the ISP, INDOT, and BMV records. This subcommittee will work to define data tracking and coordination needs specifically for the SMS, by assessing and maximizing the use of existing reporting techniques, data collection and dissemination techniques, and automation techniques as identified through Task 5. Once this framework is established, work will begin on making each of the relevant systems compatible with each other to provide optimal data access to all SMS participants including state and local agencies. The responsible organizations include INDOT, BMV, Governor's Council on Impaired and Dangerous Driving, FARS, ISP, and local law enforcement agencies. Subcommittee assigned: November, 1994. Planned completion of framework: December, 1996.

Task 7. Statewide Crash and Safety Related Data Analysis:

Current activities will be continued to provide an extensive statistical analysis of the database to identify problem areas and to provide information for developing future programs, procedures and activities. The INDOT Roadway Management Division, the Bureau of Motor Vehicles, the Indiana State Police, and the Governor's Council on Impaired and Dangerous Driving will be responsible for this task. Subcommittee assigned: October, 1994. Planned completion: December, 1995.

Task 8. Selection of Safety Management Strategies:

A predictive modeling procedure will be developed through which safety impacts of highway and transit improvement projects and programs can be identified. Such a procedure will be used by the SMS Steering Committee to recommend appropriate safety management strategies to all concerned agencies. The INDOT Roadway Management Division will be responsible for this task. Subcommittee assigned: October, 1994. Planned completion: March, 1996.

Task 9. Establish Needs Assessment and Prioritization Mechanisms:

If we are to be successful in the coordination of programs to make the most of our limited resources, it will be necessary to establish mechanisms that can be used to guide agencies in their selection and implementation of traffic safety programs and projects. This task will require an extensive amount of coordination and cooperation within and between agencies

during the development of their annual operating plans. Therefore, the Steering Committee will assign a subcommittee made up of representatives of the heads of all relevant agencies. This subcommittee will be responsible for developing and implementing a methodology which allows prioritization of programs and projects based on a formalized needs assessment procedure. The resulting list of programs and projects will serve as the Problem Identification section of the annual Safety Management System Implementation Plan. Subcommittee assigned: May, 1995. Planned completion: September, 1995.

Task 10. Local Implementation:

The SMS Steering Committee will ensure that the local jurisdictions have a fair opportunity to implement the developed SMS processes, as tailored to meet both their needs and limited resources. Local jurisdictions will be responsible to provide traffic safety related outputs from their processes, so that these can be incorporated into the Highway Safety Plan, and other applicable plans, programs or processes. The INDOT, HERPICC and the Governor's Council on Impaired and Dangerous Driving will take the leadership in guiding local jurisdictions to the implementation phase. Subcommittee assigned: June, 1995. Planned completion: March, 1996.

Task 11. Training Implementation:

Training needs will be identified and a training program will be developed and implemented. This task is to ensure that the actual procedures for identifying skills and training needs are most appropriate to the developed SMS. The Governor's Council on Impaired and Dangerous Driving with the assistance of INDOT, BMV, Department of Education, SEMA and local highway agencies will then apply the appropriate changes to existing procedures, and provide for optimal training access to any SMS participant. Subcommittee assigned: May, 1995. Planned completion: March, 1996.

Task 12. TIP/ STIP Implementation:

The INDOT will ensure that the SMS's decision-making process is appropriately considered by regional and INDOT Divisions. The various outputs obtained from the SMS will be incorporated into annual Transportation Improvement Programs (TIP) and the annual State Transportation Improvement Program (STIP) development. The responsible agencies include the INDOT Planning Division, MPO's, and local programs. Planned completion: June, 1996.

Task 13. Advocacy Group Input:

The SMS Steering Committee will ensure that various traffic safety or special interest advocacy groups and private organizations are identified and incorporated into the Safety Coalition. It will also ensure that any information provided by these advocacy groups is incorporated into the applicable plans, programs and projects. Planned completion: October, 1994.

Task 14. Management Evaluation:

A procedure will be developed to ensure that internal quality control programs which address both administrative (process) and impact (outcome) evaluations are implemented, thus allowing statewide SMS policies and functions to be evaluated. The SMS Steering Committee will be responsible for this task and it will coordinate the evaluation of all statewide efforts toward the ultimate goal of preventing and reducing the number and severity of crashes. Where necessary, agencies will be provided with the appropriate training to enable proper evaluations. Subcommittee assigned: June, 1995. Planned completion: August, 1996.

Task 15. Identify Resources for SMS Work Plan and Implementation:

In order for the Work Plan tasks to be undertaken, there will need to be some allocation of resources. Not only will staff time need to be allocated, but funding must be identified, and cost must be estimated for each task. The Steering Committee will be responsible for identifying potential sources of funds and for the coordination of resources between relevant agencies. The Steering Committee will develop cost and resource requirements for each task and submit these estimates to the affected department heads for approval. Each subcommittee will be responsible for reporting expected costs related to manpower, materials, and travel to the Steering Committee within one month of their initial meeting. Planned completion: ongoing effort.

Task 16. Assure Coordination with other ISTE A Management Systems:

The Safety Management System is only one part of the overall management effort prescribed by ISTE A. As such, it is vital that there be active coordination between each of the established management systems during the planning and implementation of the systems. This coordination will be the responsibility of the SMS focal point who will keep the Steering Committee informed as to the actions of the other systems. (continuous effort)

Task 17. Develop Safety Outreach Plan:

The Steering Committee will coordinate public information and education activities through the existing PI&E staff (the IN Team) of the agencies who are members of the Safety Coalition. Any data analysis, results of subcommittee activities, or other information of interest to the public will be made available for dissemination. Information of relevance to Coalition members will be made available through quarterly meetings and, if necessary, correspondence from the Focal Point. Subcommittee assigned: November, 1994. In operation throughout development, implementation and beyond.

Task 18. Participate in National and Regional SMS Planning:

Throughout the period of development and implementation of the Indiana SMS there will be a number of opportunities for the Steering Committee and or selected Safety Coalition members to attend meetings and seminars that are hosted by FHWA and NHTSA in the area of Safety Management Systems, Traffic Records, and Program Evaluation. Efforts will be made to ensure that the Indiana SMS is represented at such events so that we may stay abreast of current information and relevant changes that will allow Indiana to make the best of their SMS.

CERTIFICATION

The certification that the SMS is being implemented throughout the state will be submitted by INDOT to the FWHA Division Administrator by January 1st. of each year, beginning January 1, 1995--- with respect to the following compliance schedule:

1. By October 1, 1994, Work Plan will be submitted . This work plan has identified major activities and responsibilities and it provides a schedule of tasks to be performed.
2. By January 1, 1995, Work Plan approved.
3. By October 1, 1995, the SMS will be complete or underway, in accordance with the SMS Implementation Plan.
4. By October 1, 1996, the SMS will be fully operational.

**Indiana Safety Management System
Work Plan Schedule**

Task	Description	Planned Start Date	Planned End Date	Resource
1	Establish SMS Steering Committee	12/93	ongoing	INDOT, HERPICC, BMV, ISP, COUNCIL
2	Identification of SMS Focal Point		6/94	INDOT
3	Identify Existing Agencies, Programs, Procedures & Activities	3/94	ongoing	Steering Committee, Safety Coalition
4	Establish SMS Safety Coalition	12/93	ongoing	Steering Committee
5	Conduct Traffic Records Assessment	1/95	9/95	COUNCIL
6	Data Base Development/Coordination With Other Management Systems	11/94	12/96	INDOT, ISP, BMV, HERPICC, SEMA
7	Statewide Crash and Safety Related Data Analysis	10/94	12/95	INDOT, COUNCIL, ISP, ATC, BMV, HERPICC
8	Select Safety Management Strategies	10/95	3/96	INDOT, HERPICC, ATC
9	Establish Needs Assessment and Prioritization Mechanisms	5/95	9/95	BMV, ISP, COUNCIL, INDOT, MPO's, etc.
10	Local Implementation	6/95	3/96	Steering Committee, COUNCIL, MPO's
11	Training Implementation	5/95	3/96	INDOT, COUNCIL, DOE, BMV, ATC, ILEA
12	TIP/ STIP Implementation	10/95	6/96	INDOT, MPO's
13	Advocacy Group Input	3/94	10/94	Steering Committee
14	Management Evaluation	6/95	8/96	Steering Committee
15	Identify Resources for SMS Work Plan and Implementation	3/94	ongoing	Steering Committee, Subcommittees
16	Assure Coordination with other ISTEA Management Systems	3/94	ongoing	INDOT
17	Develop Safety Outreach Plan	11/94	ongoing	Steering Committee, IN Team
18	Participate in National and Regional SMS Planning	3/94	ongoing	Steering Committee
	Prepare SMS Implementation Plan	4/95	9/95	Steering Committee

Appendix A

1. Coordination and integration of broad base safety programs such as motor carrier, corridor and community based traffic safety activities.

Agency	Contact Person	Engineering	Enforcement	Education
INDOT Department of Education	Dale Hertweck John Bodenker	Crash Analysis	Bus Inspection in conjunction with Bus Driver Training through DOE	Motor cycle training programs- Motorist awareness, Alcohol Education and Licensing activities coordinated with the OTS and BMV - Driver Education Instruction approved for commercial schools to the BMV
City of W. Lafayette Vehicle Services	Opal Kuhl Marjorie Maginn	Technical Highway committee for MPO	IRP proof of Insurance and VIN Inspection-Registration suspensions etc	IRP Manual "Guide to In Trucking"- "Chart Your course". "Watercraft Brochure"- "Odometer Fraud"- "Car-Jacking" - Brochure racks in branches
BMV CDL Department	Dick Mynes		CDL skill tests- CDL Pilot, Medical Skills Book	CDL Handbook - CDL Skills Book Compliance Committee

1. Coordinating and Integration of broad base safety programs such as motor carrier, corridor and community based traffic safety activities.

Agency	Contact Person	Engineering	Enforcement	Education
BMV-Public relations	Alvin Hayes		Campaign for graded D.L.- Registration compliance	M/Cycle awareness- Older Driver Education- Open Container Promotion- Car jacking Brochures- younger drivers Issues- Odometer fraud brochure.
BMV- Defensive Driving Division	James R. Dixon			Arrange Defensive Driving classes and programs DDC-PTD Classes DDC Student/Parent Pilot Program CDL compliance program
BMV	Patty Ball			Operation Buckle down
Indiana State Police	Maj E. Carraway			Operation CARE S.W.D.U.I.W.P.-Project 55- HPV -Patrol- MSCAP I.D.A.C.S.

2. Identifying and investigating hazardous or potentially hazardous public roadway safety problems, locations and features, including railroad - roadway grade crossings, and establishing countermeasures and setting priorities.

Agency	Contact Person	Engineering	Enforcement	Education
INDOT	Jim Potularski	Research accident records prior to completing scopes and design of roadway	Rail-roadway safety HES program	
INDOT	Mike Helton		Spot and section accident studies	
INDOT	Date Herweck		Identification of High Accident locations	
NIRPC	Bill Brown			Cooperation with law enforcing agencies on school bus stop laws.
Department of Education	John Bodeker/ Pete Baxter			Public education for stopping for school bus, when, where required
City of W. Lafayette	Opal Kuhl			Police Accident database for vehicle

2. Identifying and investigating hazardous or potentially hazardous public roadway safety problems, locations and features, including railroad - roadway grade crossings, and establishing countermeasures and setting priorities.

Agency	Contact Person	Engineering	Enforcement	Education
Hamilton County Highway Department	Les Locke	Investigate and respond to written complaints or hazards. Major problems go into 5-year plan	Work with sheriff Dept. to provide adequate signage for enforcement. Computerized list of all official actions for traffic control published every six months.	Notify all school corporations and sheriff dept. of all posted bridges Arrange Defensive Driving classes and programs DDC-PTD Classes DDC Student/Parent Pilot Program HAZMAT Program Life Saver
BMV- Defensive Driving Division	James R. Dixon			
Indiana State Police	Maj E. Carraway			

J. Ensuring early consideration of safety needs, goals and priorities throughout the planning, development and construction of all public roadway transportation activities

Agency	Contact Person	Engineering	Enforcement	Education
INDOT	Jim Polularski	Identifying potential roadway deficiencies during scope; insure proper traffic control devices are in place		
INDOT	Mike Helton	3R procedures		
INDOT	Dale Hertweck	Crash Analysis		
NIRPC	Bill Brown	Identification of High Accident locations		
Department Of Education	Pete Baxter John Bodeker		School Bus construction specification set by state school bus committee.	
Hamilton County Highway Department	Les Locke	Evaluate pavement markings needs and - existing safety program within 5-year program		
Vehicle Services	Marjorie Maginn			Monthly and annual reports of Registration, Title and Dealers
Indiana State Police	Maj E. Carraway			Speed Enforcement In Construction projects

4. Identifying safety needs of special user groups, such as older drivers, pedestrians, bicyclists, motorcyclists, commercial motor carriers, and hazardous material carriers, in the planning, design, construction and operation of the public roadway system.

Agency	Contact Person	Engineering	Enforcement	Education
INDOT	Jim Polularski			Conduct training Seminars for the Institute of Transportation
NIRPC	Bill Brown	Regional bikeway plan Includes many shared- use facilities		
INDOT	Dale Hentweek	Crash Analysis		Motorcycle rider training courses, bus driver training courses - Approval of Driver education teachers
Department Of Education	Pete Baxter John Boddeker			
City of W.Lafayette	Opal Kuhl			Development of bicycle brochure- Citizen safety committee - and Traffic commission for safety.

- 4. Identifying safety needs of special user groups, such as older drivers, pedestrians, bicyclists, motorcyclists, commercial motor carriers, and hazardous material carriers, in the planning, design, construction and operation of the public roadway system.**

Agency	Contact Person	Engineering	Enforcement	Education
Hamilton County Highway Department Vehicle Services	Les Locke Marjorie Maginn	Task force for alternative transportation needs and standards	School Bus and Antique Vehicle Inspection	Brochure given to all motorcycle operators on m/c operators license endorsement
BMV-Public relations	Alvin Hayes		Older driver - younger driver issues -Motorcycle awareness- CDL issue campaign	Arrange Defensive Driving classes and programs
BMV- Defensive Driving Division	James R. Dixon			DDC-PTD Classes DDC Student/Parent Pilot Program

4. Identifying safety needs of special user groups, such as older drivers, pedestrians, bicyclists, motorcyclists, commercial motor carriers, and hazardous material carriers, in the planning, design, construction and operation of the public roadway system.

Agency	Contact Person	Engineering	Enforcement	Education
BMV- DISR	James L. Sears		Point Study Program Habitual Traffic Violator Program-Financial responsibility Program - School Invalidation- Medical Advisory Board- Biopic Program	Medical advisory board/ Drivers with special needs
BMV	Patty Ball			Medical advisory board/ Drivers with special needs

6. Routinely maintaining and upgrading safety hardware, public roadway elements and operational features, including the policies, practices or procedures to address safety enhancement opportunities in maintenance and operational activities.

Agency	Contact Person	Engineering	Enforcement	Education
INDOT	Jim Potulenski	Routine maintenance of Traffic Control Devices and their appurtenances for improvement		
INDOT	Date Hertweck	Maintain and update accident location pseudo numbers in accident files		Motorcycle safety program policy manual
Department Of Education	Pete Baxter John Bodeker			
City of W.Lafayette	Opal Kuhl	Sign Inventory		
Hamilton County Highway Department	Iles Locke	Annual evaluation of Pavement markings-Intersection and guard rail improvement program		

Appendix B

SAFETY MANAGEMENT SYSTEM

Steering Committee Members

John Nagle
Congestion and Safety Management Engineer
Indiana SMS focal point

Charles Alley, FHWA
Karen Bergren, BMV
John Bodeker, DOE
Martha Brooks, FHWA
Melvin Carraway, SEMA
Jeff Golc, BMV
Major John Hill, ISP
Dwayne James, ATC/Purdue University
Curtis Murff, NHTSA
Jeff Byrd, BMV
Jim Patton, OTS
Kumares Sinha, JHRP/Purdue University
Robert Woods, INDOT

Appendix C

Current Indiana SMS Safety Coalition Members

Charles Alley
Safety/Traffic Operations Eng.
Federal Highway Admin. - Room 254
575 North Pennsylvania Street
Indianapolis, IN 46204

John Bodeker
Division of School Traffic Safety
Statehouse - Room 229
Indianapolis, IN 46204

Bill Brown
Northwestern Indiana Regional
Planning Commission
8149 Kennedy Avenue
Highland, IN 46322

John Doyle
Criminal Justice Institute
IGCS - E209
302 West Washington Street
Indianapolis, IN 46204

Joe Fletcher
HERPICC Purdue University
1284 Civil Engineering Building
West Lafayette, IN 47907

Melvin Carraway, Director
State Emergency Management
IGCS - 208
302 West Washington Street
Indianapolis, IN 46204

Gilbert Holmes, Commissioner
Bureau of Motor Vehicles
IGCN - 440
100 North Senate
Indianapolis, IN 46204

Lloyd Jennings, Superintendent
Indiana State Police
IGCN 3W-05
100 North Senate
Indianapolis, IN 46204

Charles Barrett
Indiana Dept. of Health - Room 441-S
1330 West Michigan Street
Indianapolis, IN 46206

Karen Bergren
Motor Vehicle Information Services
Bureau of Motor Vehicles IGCN - 420
100 North Senate
Indianapolis, IN 46204

Jeff Byrd
Vehicle Services
Bureau of Motor Vehicles IGCN - 440
100 North Senate
Indianapolis, IN 46204

Mike Eckert
Allen County
One West Superior Street
Fort Wayne, IN 46802

Richard Good
Indiana Prosecuting Attorneys Council
Indiana Criminal Justice Institute
IGCS - E209
302 West Washington Street
Indianapolis, IN 46204

Mike Helton
Division of Planning
INDOT IGCN - 808
100 North Senate
Indianapolis, IN 46204

Steve Hull
Division of Design
INDOT IGCN - 642
100 North Senate
Indianapolis, IN 46204

Yi Jiang
Division of Research
P.O. Box 2279
West Lafayette, IN 47906

Curtis Murff
National Traffic Safety
Administration, Reg V
18209 Dixie Highway
Homewood, IL 60430-2205

Diana Mayer
Director of Safety
Shilli Transportation Services
P.O. Box 351
Remington, IN 47977

Pete Baxter
Division of School Traffic Safety
Statehouse - Room 229
Indianapolis, IN 46204

Martha Brooks
Office of Motor Carriers
Federal Highway Admin. - Room - 254
575 North Pennsylvania Street
Indianapolis, IN 46204

Major John Hill
Enforcement Division
Indiana State Police
IGCN 3W-28
100 North Senate
Indianapolis, IN 46204

Mike Eslinger
Indiana Sheriff's Association
P.O. Box 19127
Indianapolis, IN 46219

Jeff Golc
Administration
Bureau of Motor Vehicles
IGCN - 440
100 North Senate
Indianapolis, IN 46204

Dale Hertweck
Division of Roadway Management
INDOT IGCN - 808
100 North Senate
Indianapolis, IN 46204

Dwayne James
Automotive Transportation Center
Purdue University
1293 Potter Engineering Center
West Lafayette, IN 47907

Opal Kuhl
West Lafayette City Engineer
609 West Navajo
West Lafayette, IN 47906

Lori Miser
City of Indianapolis
Department of Metropolitan Planning
129 East Market Street, 6th Floor
Indianapolis, IN 46204

John Nagle
Congestion and Safety Management Engineer
Division of Roadway Management
INDOT IGCN - 808
100 North Senate
Indianapolis, IN 46204

Hugh Orr
AAA Hoosier Motor Club
Executive Office
3750 Guion Road
Indianapolis, IN 46222

Annette Rose
Safety Responsibility Driver Improvement
Bureau of Motor Vehicles
IGCN - 402
100 North Senate
Indianapolis, IN 46204

Frank Vilardo
Transportation Research Center
222 West 2nd Street
Bloomington, IN 47403

Dick Neuman
General Manager
Indiana Southern Railroad
P.O. Box 158
Petersburg, IN 47567

Jim Patton, Director
Office of Traffic Safety
Criminal Justice Institute
150 West Market Street
Indianapolis, IN 46204

Ms. Marty Scott
MADD
1016 East Orange Street
Indianapolis, IN 46203

Thomas Kinser
Operation Life Saver
31 East Georgia Street
Indianapolis, IN 46204

John Weaver
Division of Roadway Management
INDOT IGCN - 808
100 North Senate
Indianapolis, IN 45204

Les Locke
Hamilton County Highway Engineer
1717 East Pleasant Street
Noblesville, IN 46060

Catherine O'Connor
Indiana Criminal Justice Institute
IGCS - E209
302 West Washington Street
Indianapolis, IN 46204

Michael F. Ward
CAE Executive Director
Indiana Association of Chiefs of Police
8835 Allison Pointe Trail
Indianapolis, IN 46250

Jim Poturalski
Division of Design
INDOT IGCN - 642
100 North Senate
Indianapolis, IN 46204

Kumares Sinha
1284 Civil Engineering Building
Purdue University
West Lafayette, IN 47907

Robert Woods, Chief
Division of Roadway Management
INDOT IGCN - 808
100 North Senate
Indianapolis, IN 46204

COVER DESIGN BY ALDO GIORGINI